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135

Asp Ala Ile Leu Ser Ala Leu Cys Thr Pro Gly Gly Arg Phe Val Leu 150 155 160 145

Asn Val Asp Ser Ala Pro Trp Lys Leu Leu Arg Lys Asp Leu Met Thr 165 170

Leu Ala Gln Thr Trp Ser Val Leu Ser Tyr Phe Asn Leu Ala Leu Thr 180 185

Phe His Thr Ser Asp Ile Asn Val Asp Arg Ala Arg Leu Asn Tyr Gly 200

Leu Val Met Lys Met Asp Leu Asp Val Gly Ser Leu Ile Ser Leu Gln 210 215 220

Ile Ser Gln Ile Ala Gln Ser Ile Thr Ser Arg Leu Gly Phe Pro Ala 235 225 230

Leu Ile Thr Thr Leu Cys Glu Ile Gln Gly Val Val Ser Asp Thr Leu 245 250

Ile Phe Glu Ser Leu Ser Pro Val Ile Asn Leu Ala Tyr Ile Lys Lys 260 265

Asn Cys Trp Asn Pro Ala Asp Pro Ser Ile Thr Phe Gln Gly Thr Arg 280 275 285

-22

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Arg Thr Arg Thr Arg Ala Ser Ala Ser Ala Ser Glu Ala Pro Leu Pro Ser Gln His Pro Ser Gln Pro Phe Ser Gln Arg Pro Arg Pro Pro Leu 305 310 315 320 Leu Ser Thr Ser Ala Pro Pro Tyr Met His Gly Gln Met Leu Arg Ser 325 330 Leu Tyr Gln Gly Gln Gln Ile Ile Gln Asn Leu Tyr Arg Leu Ser 345 Leu His Leu Gln Met Asp Leu Pro Leu Met Thr Pro Glu Ala Tyr Arg 360 Gln Gln Val Ala Lys Leu Gly Asp Gln Pro Ser Thr Asp Arg Gly Glu 370 375 380 Glu Pro Ser Gly Ala Ala Ala Thr Glu Asp Pro Ala Val Asp Glu Asp 385 390 395 Leu Ile Ala Asp Leu Ala Gly Ala Asp Trp Ser Pro Trp Ala Asp Leu 410 Gly Arg Gly Ser Glx 420 <210> 7 <211> 1596 <212> DNA <213> Artificial Sequence <220> <223> Description of Artificial Sequence: plant retroelement sequence

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Tyr Ala Gln Met Asp Gly Glu Pro Ala Gln Arg Val Thr Leu Glu Asp 50 55 60

Phe Ser Asn Thr Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro 65 70 75 80

Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu 85 90 95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys 100 105 110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn 115 120 125

Leu Phe Ser Phe Ser Leu Ala Gly Glu Ala Lys Arg Trp Leu His Ser

115

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	Ile	Ser	Tyr	Phe 180	His	Gln	Phe	Leu	Asp 185	Glu	Ser	Leu	Ser	Glu 190	Ala	Leu
	Asp	His	Phe 195	His	Gly	Leu	Leu	Arg 200	Lys	Thr	Pro	Thr	His 205	Arg	Tyr	Ser
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2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Met	Glu	Leu	Val	Glu 245	Asn	Met	Ala	Ala	Ser 250	Asp	Gln	Ala	Ile	Leu 255	His
Han then your	Asp	His	Thr	Tyr 260	Val	Pro	Thr	Lys	Arg 265	Ser	Leu	Leu	Glu	Leu 270	Ser	Thr
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	Pro	Pro	Tyr	Gln	Pro	Pro	Tyr	Gln	His	Pro	Ser	Gln	Gly	Pro	Asn	Gln

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Gln Glu Lys Pro Thr Lys Ile Glu Glu Leu Leu Gln Phe Ile Lys 420 425 430 Glu Thr Arg Ser His Gln Lys Ser Thr Asp Ala Ala Ile Arg Asn Leu 440 Glu Val Gln Met Gly Gln Leu Ala His Asp Lys Ala Glu Arg Pro Thr 455 Arg Thr Phe Gly Ala Asn Met Glu Arg Arg Thr Pro Arg Lys Asp Lys 465 470 475 480 Ala Val Leu Thr Arg Gly Gln Arg Arg Ala Gln Glu Glu Gly Lys Val 485 490 Glu Gly Glu Asp Trp Pro Glu Glu Gly Arg Thr Glu Lys Thr Glu Glu 500 505 Glu Glu Lys Val Ala Glu Glu Pro Lys Arg Thr Lys Ser Gln Arg Ala 515 520 Arg Glu Ala Lys 530 <210> 9 <211> 603 <212> DNA <213> Artificial Sequence <220> <223> Description of Artificial Sequence: plant retroelement sequence

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Val Ala Val Asp Tyr Val Ser Lys Trp Val Glu Ala Ile Ala Thr Pro 50 55

Lys Asp Asp Ala Arg Val Val Ile Lys Phe Leu Lys Lys Asn Ile Phe

Ser Arg Phe Gly Val Pro Arg Ala Leu Ile Ser Asp Arg Gly Thr His

Phe Cys Asn Asn Gln Leu Lys Lys Val Leu Glu His Tyr Asn Val Arg 100 105

His Lys Val Ala Thr Pro Tyr His Pro Gln Thr Asn Gly Gln Ala Glu 115 120 125

Ile Ser Asn Arg Glu Leu Lys Arg Ile Leu Glu Lys Thr Val Ala Ser 130 135 140

Thr Arg Lys Asp Trp Ser Leu Lys Leu Asp Asp Ala Leu Trp Ala Tyr 150 155

Arg Thr Ala Phe Lys Thr Pro Ile Gly Leu Ser Pro Phe Gln Leu Val 165 170

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                                 40
                                                     45
   Cys Ile Asp Tyr Arg Lys Leu Asn Glu Ala Thr Arg Lys Asp His Phe
   Pro Leu Pro Phe Met Asp Gln Met Leu Glu Arg Leu Ala Gly Gln Ala
                         70
                                             75
   Tyr Tyr Cys Phe Leu Asp Gly Tyr Ser Gly Tyr Asn Gln Ile Ala Val
                     85
                                         90
                                                             95
   Asp Pro Arg Asp Gln Glu Lys Thr Ala Phe Thr Cys Pro Phe Gly Val
                100
                                    105
                                                         110
   Phe Ala Tyr Arg Arg Met Pro Phe Gly Leu Cys Asn Ala Pro Ala Thr
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115 120 125

Phe Gln Arg Cys Met Leu Ala Ile Phe Ser Asp Met Val Glu Lys Ser 135 140 130 Ile Glu Val Phe Met Asp Asp Phe Ser Val Phe Gly Pro Ser Phe Asp 150 155 145 Ser Cys Leu Arg Asn Leu Glu Arg Val Leu Gln Arg Cys Glu Glu Thr 170 Asn Leu Val Leu Asn Trp Glu Lys Cys His Phe Met Val Arg Glu Gly 185 190 180 Ile Val Leu Gly His Lys Ile Ser 200 195 <210> 13 <211> 858 <212> DNA <213> Artificial Sequence <220> <223> Description of Artificial Sequence: plant retroelement sequence <400> 13 aaggaagaac cactagccct tccacaggat ctcccatatc ctatggcacc caccaagaag 60 aacaaggagc gttactttgc acgtttcttg gaaatattca aagggttaga aatcactatg 120 ccattegggg aageettaca geagatgeee etetaeteea aatttatgaa agaeateete 180 accaagaagg ggaagtatat tgacaacgag aatattgtgg taggaggcaa ttgcagtgcg 240 ataatacaaa ggattctacc caagaagttt aaagaccccg gaagtgttac catcccgtgc 300 accattggga aggaagccgt aaacaaggcc ctcattgatc taggagcaag tatcaatctg 360 atgcccttgt caatgtgcaa aagaattggg aatttgaaga tagatcccac caagatgacg 420 cttcaactgg cagaccgctc aatcacaagg ccatatgggg tggtagaaga tgtcctggtc 480 aaggtacqcc acttcacttt tccggtggac tttgttatca tggatatcga agaagacact 540 qaqattcccc ttatcttagg cagacccttc atgctgactg ccaactgtgt ggtggatatg 600 gggaaaggga acttagagtt gactattgat aatcagaaga tcacctttga ccttatcaag 660 gcaatgaagt acccacagga gggttggaag tgcttcagaa tagaggagat tgatgaggaa 720 gatgtcagtt ttctcgagac accaaagact tcgctagaaa aagcaatggt aaatcattta 780 gactgtctaa ccagtgaaga ggaagaagat ctgaaggctt gcttggaaaa cttggatcaa 840 gaagacagta ttcctgag <210> 14 <211> 286 <212> PRT <213> Artificial Sequence <220>

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Dan Burn

11

12

<223> Description of Artificial Sequence: plant

**:=

retroelement sequence

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Phe	Lys	Gly 35	Leu	Glu	Ile	Thr	Met 40	Pro	Phe	Gly	Glu	Ala 45	Leu	Gln	Gln
Met	Pro 50	Leu	Tyr	Ser	Lys	Phe 55	Met	Lys	Asp	Ile	Leu 60	Thr	Lys	Lys	Gly
Lys 65	Tyr	Ile	Asp	Asn	G1u 70	Asn	Ile	Val	Val	Gly 75	Gly	Asn	Сув	Ser	Ala 80
Ile	Ile	Gln	Arg	Ile 85	Leu	Pro	Lys	Lys	Phe 90	Lys	Asp	Pro	Gly	Ser 95	Val
Thr	Ile	Pro	Cys 100	Thr	Ile	Gly	Lys	Glu 105	Ala	Val	Asn	Lys	Ala 110	Leu	Ile
Asp	Leu	Gly 115	Ala	Ser	Ile	Asn	Leu 120	Met	Pro	Leu	Ser	Met 125	Cys	Lуз	Arg
 Ile	Gly 130	Asn	Leu	Lys	Ile	Asp 135	Pro	Thr	Lys	Met	Thr 140	Leu	Gln	Leu	Ala
Asp 145	Arg	Ser	Ile	Thr	Arg 150	Pro	Tyr	Gly	Val	Val 155	Glu	Asp	Val	Leu	Val 160
Lys	Val	Arg	His	Phe 165	Thr	Phe	Pro	Val	Asp 170	Phe	Val	Ile	Met	Asp 175	Ile
Glu	Glu	Asp	Thr 180	Glu	Ile	Pro	Leu	Ile 185	Leu	Gly	Arg	Pro	Phe 190	Met	Leu
Thr	Ala	Asn 195	Cys	Val	Val	Asp	Met 200	Gly	Lys	Gly	Asn	Leu 205	Glu	Leu	Thr
Ile	Asp 210	Asn	Gln	Lys	Ile	Thr 215	Phe	Asp	Leu	Ile	Lys 220	Ala	Met	Lys	Tyr
Pro 225	Gln	Glu	Gly	Trp	Lys 230	Cys	Phe	Arg	Ile	Glu 235	Glu	Ile	Asp	Glu	Glu 240
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    tatgcaacca cagaaaagga gatgctagcc attgtctttg ccttggagaa gttcaggtca 180
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    tacttgatag gg
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ij.
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   Val Leu Asn Glu Ala Gln Leu Asn Tyr Ala Thr Thr Glu Lys Glu Met
             35
                                  40
                                                      45
   Leu Ala Ile Val Phe Ala Leu Glu Lys Phe Arg Ser Tyr Leu Ile Gly
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Val Asn His Leu Asp Cys Leu Thr Ser Glu Glu Glu Glu Asp Leu Lys

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72

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<223> Description of Artificial Sequence: plant retroelement sequence

<400> 18

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Ile Glu Ala Thr Cys Arg Arg Asn Asn Ala Ala Arg Arg Arg Glu 20 25 30

Gln Asp Ile Glu Gly Ser Ser Tyr Thr Ser Pro Pro Pro Ser Pro Asn 35 40 45

Tyr Ala Gln Met Asp Gly Glu Pro Ala Gln Arg Val Thr Leu Glu Asp 50 55 60

Phe Ser Asn Thr Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro 65 70 75 80

Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu85 90 95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys 100 105 110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn 115 120 125

Leu Phe Ser Phe Ser Leu Ala Gly Glu Ala Lys Arg Trp Leu His Ser 130 135 140

Phe Lys Gly Asn Ser Leu Arg Thr Trp Glu Glu Val Val Glu Lys Phe 145 150 155 160

- Leu Lys Lys Tyr Phe Pro Glu Ser Lys Thr Val Glu Arg Lys Met Glu 165 170 175
- Ile Ser Tyr Phe His Gln Phe Leu Asp Glu Ser Leu Ser Glu Ala Leu 180 185 190
- Asp His Phe His Gly Leu Leu Arg Lys Thr Pro Thr His Arg Tyr Ser 195 200 205
- Glu Pro Val Gln Leu Asn Ile Phe Ile Asp Asp Leu Gln Leu Leu Ile 210 215 220
- Glu Thr Ala Thr Arg Gly Lys Ile Lys Leu Lys Thr Pro Glu Glu Ala 225 230 235 240
- Met Glu Leu Val Glu Asn Met Ala Ala Ser Asp Gln Ala Ile Leu His 245 250 255
- Asp His Thr Tyr Val Pro Thr Lys Arg Ser Leu Leu Glu Leu Ser Thr 260 265 270
- Gln Asp Ala Thr Leu Val Gln Asn Lys Leu Leu Thr Arg Gln Ile Glu 275 280 285
- Ala Leu Ile Glu Thr Leu Ser Lys Leu Pro Gln Gln Leu Gln Ala Ile 290 295 300
- Ser Ser Ser His Ser Ser Val Leu Gln Val Glu Glu Cys Pro Thr Cys 305 310 315 320
- Arg Gly Thr His Glu Pro Gly Gln Cys Ala Ser Gln Gln Asp Pro Ser 325 330 335
- Arg Glu Val Asn Tyr Ile Gly Ile Leu Asn Arg Tyr Gly Phe Gln Gly 340 345 350
- Tyr Asn Gln Gly Asn Pro Ser Gly Phe Asn Gln Gly Ala Thr Arg Phe 355 360 365
- Asn His Glu Pro Pro Gly Phe Asn Gln Gly Arg Asn Phe Met Gln Gly 370 375 380
- Ser Ser Trp Thr Asn Lys Gly Asn Gln Tyr Lys Glu Gln Arg Asn Gln 385 390 395 400
- Pro Pro Tyr Gln Pro Pro Tyr Gln His Pro Ser Gln Gly Pro Asn Gln 405 410 415
- Gln Glu Lys Pro Thr Lys Ile Glu Glu Leu Leu Gln Phe Ile Lys

Ta.

Glu Thr Arg Ser His Gln Lys Ser Thr Asp Ala Ala Ile Arg Asn Leu 435 . 440 445

Glu Val Gln Met Gly Gln Leu Ala His Asp Lys Ala Glu Arg Pro Thr 450 455 460

Arg Thr Phe Gly Ala Asn Met Glu Arg Arg Thr Pro Arg Lys Asp Lys 465 470 475 480

Ala Val Leu Thr Arg Gly Gln Arg Arg Ala Gln Glu Glu Gly Lys Val 485 490 495

Glu Gly Glu Asp Trp Pro Glu Glu Gly Arg Thr Glu Lys Thr Glu Glu
500 505 510

Glu Glu Lys Val Ala Glu Glu Pro Lys Arg Thr Lys Ser Gln Arg Ala 515 520 525

Arg Glu Ala Lys Lys Glu Glu Pro Leu Ala Leu Pro Gln Asp Leu Pro 530 540

Tyr Pro Met Ala Pro Thr Lys Lys Asn Lys Glu Arg Tyr Phe Ala Arg 545 550 555 560

Phe Leu Glu Ile Phe Lys Gly Leu Glu Ile Thr Met Pro Phe Gly Glu 565 570 575

Ala Leu Gln Gln Met Pro Leu Tyr Ser Lys Phe Met Lys Asp Ile Leu 580 585 590

Thr Lys Lys Gly Lys Tyr Ile Asp Asn Glu Asn Ile Val Val Gly Gly 595 600 605

Asn Cys Ser Ala Ile Ile Gln Arg Ile Leu Pro Lys Lys Phe Lys Asp 610 615 620

Pro Gly Ser Val Thr Ile Pro Cys Thr Ile Gly Lys Glu Ala Val Asn 625 630 635 640

Lys Ala Leu Ile Asp Leu Gly Ala Ser Ile Asn Leu Met Pro Leu Ser 645 650 655

Met Cys Lys Arg Ile Gly Asn Leu Lys Ile Asp Pro Thr Lys Met Thr 660 665 670

Leu Gln Leu Ala Asp Arg Ser Ile Thr Arg Pro Tyr Gly Val Val Glu 675 680 685

25

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		690					695					700				
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	Pro	Phe	Met	Leu	Thr 725	Ala	Asn	Cys	Val	Val 730	Asp	Met	Gly	Lys	Gly 735	Asn
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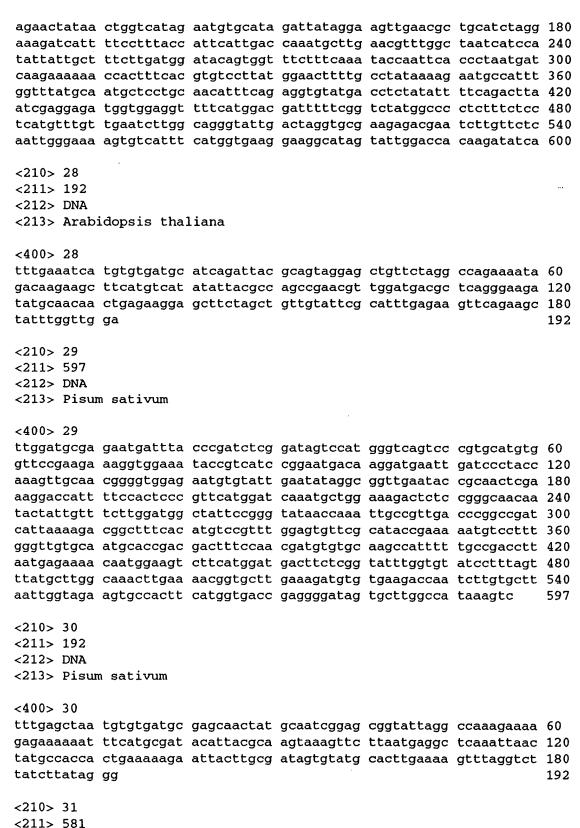
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<212> DNA



42

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